<110> YE, Jane et al.

<120> ISOLATED HUMAN PROTEASE PROTEINS,
    NUCLEIC ACID MOLECULES ENCODING HUMAN PROTEASE PROTEINS, AND
    USES THEREOF

<130> CL001058DIV

<140> (to be assigned)
<141> 2001-12-14

<150> 09/740,035
<151> 2000-12-20

<160> 4

<170> FastSEQ for Windows Version 4.0

<210> 1
<211> 1247
<212> DNA
<213> Homo sapiens

<400> 1
gccatggtgg ggcagaggtt gggaagatgg cgtggcgagg ctgggcgcag agaggctggg 60
gctgcggcca ggcgtggggt gcgtcggtgg gcggccgcag ctgcgaggag ctcactgcgg 120
tcctaacccc gccgcagctc ctcggacgca ggtttaactt ctttattcaa caaaaatgcg 180
gattcagaaa agcacccagg aaggttgaac ctcgaagatc agacccaggg acaagtggtg 240
aagcatacaa gagaagtgct ttgattcctc ctgtggaaga aacagtcttt tatccttctc 300
cctatcctat aaggagtctc ataaaacctt tattttttac tgttgggttt acaggctgtg 360
catttggatc agctgctatt tggcaatatg aatcactgaa atccagggtc cagagttatt 420
ttgatggtat aaaagctgat tggttggata gcataagacc acaaaaagaa ggagacttca 480
gaaaggagat taacaagtgg tggaataacc taagtgatgg ccagcggact gtgacaggta 540
ttatagctgc aaatgtcctt gtattctgtt tatggagagt accttctctg cagcggacaa 600
tgatcagata tttcacatcg aatccagcct caagtgttat ttccattttt gtcagttacg 660
tgggtaaagt tgccacagga agatatggac catcacttgg tgcatctggt gccatcatga 720
cagtcctcgc agctgtctgc actaagatcc cagaagggag gcttgccatt attttccttc 780
cgatgttcac gttcacagca gggaatgccc tgaaagccat tatcgccatg gatacagcag 840
gaatgatcct gggatggaaa tttttttgatc atgcggcaca tcttggggga gctcttttttg 900
gaatatggta tgttacttac ggtcatgaac tgatttggaa gaacagggag ccgctagtga 960
aaatctggca tgaaataagg actaatggcc ccaaaaaagg aggtggctct aagtaaaact 1020
gggattggac agtagtggtg catctggtcc ttgccgcctg agagccccag gagacatcgg 1080
ctagagtgac catggctatg ctcccgtctg gaagatgcca gcatctggcc tcccactgtt 1140
ttcagctgtg tcccccagtc cgtgtctttt tagaatgtga atgatgataa agttgtgaaa 1200
taaaggtttc tatctagttt gtaaaaaaaa aaaaaaaaa aaaaaa   1247

<210> 2
<211> 329
<212> PRT
<213> Homo sapiens

<400> 2
Met Ala Trp Arg Gly Trp Ala Gln Arg Gly Trp Gly Cys Gly Gln Ala
1   5   10   15

```
Trp Gly Ala Ser Val Gly Gly Arg Ser Cys Glu Glu Leu Thr Ala Val
            20                  25                  30
Leu Thr Pro Pro Gln Leu Leu Gly Arg Arg Phe Asn Phe Phe Ile Gln
            35                  40                  45
Gln Lys Cys Gly Phe Arg Lys Ala Pro Arg Lys Val Glu Pro Arg Arg
         50                  55                  60
Ser Asp Pro Gly Thr Ser Gly Glu Ala Tyr Lys Arg Ser Ala Leu Ile
65                  70                  75                  80
Pro Pro Val Glu Glu Thr Val Phe Tyr Pro Ser Pro Tyr Pro Ile Arg
               85                  90                  95
Ser Leu Ile Lys Pro Leu Phe Phe Thr Val Gly Phe Thr Gly Cys Ala
               100                 105                 110
Phe Gly Ser Ala Ala Ile Trp Gln Tyr Glu Ser Leu Lys Ser Arg Val
         115                 120                 125
Gln Ser Tyr Phe Asp Gly Ile Lys Ala Asp Trp Leu Asp Ser Ile Arg
         130                 135                 140
Pro Gln Lys Glu Gly Asp Phe Arg Lys Glu Ile Asn Lys Trp Trp Asn
145                 150                 155                 160
Asn Leu Ser Asp Gly Gln Arg Thr Val Thr Gly Ile Ile Ala Ala Asn
                 165                 170                 175
Val Leu Val Phe Cys Leu Trp Arg Val Pro Ser Leu Gln Arg Thr Met
               180                 185                 190
Ile Arg Tyr Phe Thr Ser Asn Pro Ala Ser Ser Val Ile Ser Asn Phe
               195                 200                 205
Val Ser Tyr Val Gly Lys Val Ala Thr Gly Arg Tyr Gly Pro Ser Leu
         210                 215                 220
Gly Ala Ser Gly Ala Ile Met Thr Val Leu Ala Ala Val Cys Thr Lys
225                 230                 235                 240
Ile Pro Glu Gly Arg Leu Ala Ile Ile Phe Leu Pro Met Phe Thr Phe
               245                 250                 255
Thr Ala Gly Asn Ala Leu Lys Ala Ile Ile Ala Met Asp Thr Ala Gly
               260                 265                 270
Met Ile Leu Gly Trp Lys Phe Phe Asp His Ala Ala His Leu Gly Gly
         275                 280                 285
Ala Leu Phe Gly Ile Trp Tyr Val Thr Tyr Gly His Glu Leu Ile Trp
         290                 295                 300
Lys Asn Arg Glu Pro Leu Val Lys Ile Trp His Glu Ile Arg Thr Asn
305                 310                 315                 320
Gly Pro Lys Lys Gly Gly Gly Ser Lys
                 325
```

<210> 3
<211> 19736
<212> DNA
<213> Homo sapiens

<400> 3
```
cgaggtttct tcatgttggt caggctggtc tcgaactccc gacctcaggt gatccgtccg 60
cctcagcctc ccaaagtact gctgggatta cagacgtgag ccaccgcacc cggcctttat 120
ctttcatttt ttttcatgta ttttccttta ttttaatcac tttatccaga aacatatcct 180
cgtcttgaca gtgctgtggt gcctgtggtt ccagaagct gggtgtgctg tgtgtctgtg 240
gtttgaggaa gttgcccatg gaactgacag aggaagcaga gtagtcgttg ccatttttca 300
gcctagtagg caggatcagg gaccccatct tgctctcttt gccttgaacc acaattagaa 360
taaaacacca aagccctgac tgatcatgat catagcaatc cgatctttat gatcatggcc 420
agaccattct caggtcgtct ttaccctaag atatcaatca ctgggtatga caacctagac 480
ctaagggtgc actctgggta gtaaagatga ttaactctcc caaaggaatc taaggaatcc 540
```

2

```
agagcaacac gaatcactgc tctcttccta tagggtaaac ctcccaagac tccagtccct 600
gtgaggaggc tctgcccgcc tgcccttccc agggttccag gctccacatt gggaggtgta 660
cacagtgctc ttcgctcttc attgccttgt gtatgatccc ttttcccatc tttgcataaa 720
tgctgtccct ctcaccatct ttaaaagagt tctgggtaat tatttaccaa aggtggtata 780
atgctgtcac agtccctgct agtgagacat ctgatacaac tgatggaatc agttcaacaa 840
aatgcagtaa aattttattt aatgtactac ggagaaagaa aaaatgctac cagttataag 900
atgcatcctg atttcagata ttaaaatgga aaaaatgtct taagatctgt gaaaaatgta 960
gcttcctttc ccacctctca agtgggagag caaaaactgg acagactaga aatgccaggg 1020
gctagctgag aaccttacag aatgagcaac tgcggaagcc acaggtaaca ccgagatgta 1080
gatcagctgc cagggacaag acaaagaatg ttttctaaag taaatcctct taccagtatg 1140
ttattgaaat cagtccttat tggcatcgaa gaaggtgaaa gtgctacttg cctgttgcct 1200
acagagactg gaggaatgac aaatgtttaa attattttaa ttcaacaagt agaggaatac 1260
ctgctatgtg aaggagttgt ggcaattcat aaaattaata tattttttga agtttgtagt 1320
tttcaataat aatttcttat ctaaaatgta acaagttaat tatattatcg aataaacctc 1380
aatttcgtag tactaacaac atcaacactt acagaaaaag gaaagtcact caactcccac 1440
atgtaaacag actttagaag cagttgcaga ggttttctaa attatccctg aattcctatc 1500
acatgactat ttttctcaga catgttgacc ttcacctaca cagatgactc acatatgttt 1560
ccataagctg gcagtaagtt taagaagcat accatgccct gaggaaaaag aagtaatgtt 1620
agctcttcta ctcttggcca aagaacctaa ttctgtatat tacttctgtc tttggtttgg 1680
ctattataga caataaatta ttgatctgat tataattgag aaaagtaagc tcttctaaag 1740
aagtaaaata tggatctagg gaaaggaagt tagctcccag agcatttaca atttcccagg 1800
aattctgtga ctttaccaac cctaggcagt gctgatactt taaaagcatt catttcactt 1860
gctttttttt ggctcacccc ctatccccca ggtatacagt actcttacat aattgtggaa 1920
gaatcttaca aggggtaat gtagatcaga ctttcctgct ttcatttta acctccctaa 1980
attataaata tttattttgt aggtattata gctgcaaatg tccttgtatt ctgtttatgg 2040
agagtacctt ctctgcagcg gacaatgatc agatatttca catcgaatcc agcctcaagt 2100
aagtctaact tgtgtgaatt tattttaagg tagaaataat atgaaagaaa tatgctttag 2160
ttaatggaag tgctgtaaaa aagacgaatt acctatcaat agctacaagc aaaatgcaga 2220
ggataggctg taagctcctt cactgaggac agggacctca cctctctttt tctttttctt 2280
tgttttttttt gagacggagt cttcctctgt tgcccaggct ggagtgcagt ggtgcagtct 2340
tagctcacta caacctccac ctcccaggtt caagtgattc tcctgcctca gcctccctag 2400
tagctaggat tacaggtgcc cgccaccaca cccagctagt ttttgtattt ttaatagaga 2460
cagggtttca ccgtgttgga taggctgttc ttgaacacct gacctcaggt gatctgcctg 2520
gctcggctgg agtgcagtgg cgtgatctca gctcactgca agctccgcct cccgggttca 2580
tgccattctc ctgcctcagc ctcctgagta gctgggacta caggtgcccg ccaccacgcc 2640
ccgctaattt ttttgtattt ttagtagaga cggggtttca acatgttagc caggatggtc 2700
tcgatctcct gacctcgtga tccgcccgcc tcagcctccc aaagtgctgg gattataggc 2760
gtgagccact gcgcccggcc aatttacttt ttattttatt ttattttatt ttttgagaca 2820
gggtcttgct ctgttgccca ggctagagtg cagtgatacg atcttggctc actgcaacct 2880
ctgcttctca ggctcaactg atcctcccac ctcagccccc aggagctggg actacaggtg 2940
catgccacca tgcccagcta attttttttg ttttttagtgc agatgaggtc ttgccatgtt 3000
gcccagactg cttattttt tctaatcaac ttttgccata aggacaagtt gctttcattg 3060
aactgagagt ttttattggt tgcttactaa gtagaaaaga atatttatta agacagcttt 3120
ttgtcacttt taaaaatgat gtcttaagct gggcatagtg actcacatct ataatcccag 3180
cacttgggga ggctgaggca ggtgaactgc ttgagctcag gagttcgaga ccagcctggg 3240
aaacatggtg aaaccccatc tctactaaaa atacaaaaat tagttgggca tggggtatgt 3300
acctgtggtc ccagctactc agggaggctg aggtgggagg atcacttgag cccttgagcc 3360
tcaacttgag gaagttgagg ctgcagtgag ccaagatcag tgccactgca ctccagcctg 3420
gggcgacaga gcaagactct ctccaaaaaa aaaaaaaagt cttaaaaata gctgtttttg 3480
ttttccatgt ttgtttcata aatttttttt ttttttttttt tttgagata gagtctcgct 3540
ctatggccca ggctggagtg cagtggctca atcttggctc actgcaaact ctacctcctg 3600
ggtccaagtg attctcccgc ctcagccttc cgagtagcag gaattacaaa cgtgcgccac 3660
cacacctggc taatttttat attttaata gagatggggt ttgactatgt tggccaggct 3720
ggtcttgaac tcctgactta gtgatccgcc tgccttggcc tcccaaagtg ctgggattac 3780
aggcgtgagc cactgcgtcc ggcctaattt taaaagttta aaatggataa tttttattgg 3840
ctgtgtgttt catgattacc agactatgtt tctctctctt gtagaggtcc tttgttctcc 3900
aatgttgctg tcaacattca gtcatttctc cttatttcac atggcagcaa atatgtatgt 3960
```

3

```
tttgtggagc ttctcttcca gcatagtgaa cattctgggt caagagcagt tcatggcagt 4020
gtacctatct gcaggtaata tgctttaatc tcggggcctt tgagagtata agcactctaa 4080
gctatctgca gaacggacaa agggaatgat tactgccata ttctacacgt agtgagtgct 4140
cagaacatat ttgtttctca cagtgtatgt agagaaggga gccacagatt ggtggagatg 4200
ttgccttttc tgttcatttt gctgatttct tcttacatat gaattatgtg ggtatgttta 4260
attttaagtt aggataaaca ggcgttaagt aagggttagt gtagaattta agcatgtcat 4320
ttttgtaatc tcatcgggcc ttgatttcat tagtttaggc cctccatttt atagatagtg 4380
gttcccagac ttcccggctg cctcaatctc ctgggtcttt gttaaataac cttaagcaag 4440
ctcatttccc ccagtgtgtt cagttcacag aaagctttaa atcagagcta tacaatatga 4500
ttgtcaagag tgagtttgtt ctgtcttctt tgcaagaatg tagcagggaa ccacttccta 4560
gccatggtct tgaagatggt atcgtttctt atttcagtta ggaaattctc atgcatgaat 4620
ccaggtccct agatgctgct aacgtgacag ttggtcaaat tttacttacc tctctgtttg 4680
taaaatgtac ttacttaata caatataaaa attaatttct aaaatctcta catttagaaa 4740
cagtatatct ggcagttgtg ctgtgatgta gtgaaaaaca ctaagcttgg cgatagaccc 4800
aggttcagat cctatttcta ctaccagctg agtgatgttg caaaaatgac taaacctcat 4860
gatacttacc tcctcatgac aagggttaa agaaaggact acataaaagc atctaccaca 4920
agccccagag tagatgctta attagtgttc atcgaatact tatgtgtatc tagtccttca 4980
aaaaaagaag ctgagcattg tgtttggctt gtaagataag tgtatagttc tttcccaagc 5040
actagttatg ttgtagttac agagggtctg tttcagatac attaattcct gctccatagg 5100
aggttttaa aaatgagcca cgttgactca aatggcactg aagccaaaga gacttacggg 5160
atcatccagt ctgttgtccc accccagata ttctgatttc gtgtgtctgg agtacagcca 5220
gagaatatac tcttgggaat gagtcttcat gttatagttg aggaaaatgg taactgagaa 5280
gtggagtgaa tgaccgtgtc gctcagcaga tcatgcagca ggtcagactt ttcatcccct 5340
gtaaagtcgc tgaaatgata ggcaggagaa gtattcatgc ccgtaccctc acagtgatcc 5400
agattgaaac ccgacactgt ttatctgtgt agaaatcaga aatgaaaacc attttcatgg 5460
ctggatgtgg tgccgcacgc ctgtaatccc agctactcag gaggctgggg gacaagaata 5520
acttgaaccc ggtaggcaga ggttgcagtg agccaaaatt gtaccactgc acttcagcag 5580
ccggggcgaa agagtgaaac tctgtctcaa aaaaaaaaa aaagaaaaga aaaaaaaag 5640
taaaccattt ttatacctca cttaaattat tgtaatgtga cttgtttttc aggtgttatt 5700
tccaattttg tcagttacgt gggtaaagtt gccacaggaa gatatggacc atcacttggt 5760
gcagtaagta tttctattgt aaattttttt taatttaatt tttaaattta ctttgaaata 5820
agtttagact tagaagaatg ttgtaaaatt gataagtagg ttctcatata cccttcaccc 5880
tactgttaac taacatcgaa accaagaaat taacattgaa acaatacagt tgactaattt 5940
agaatttata catttgtaaa gctttgtaaa tgtccggcta tagcttttaa ccattggtca 6000
tatatatatg tttaccagag cagagtatat ctcagaacag taagtgtgca atcctcgtaa 6060
accagagagc ctaatccagt attggaagat tctaattata gatttgaatc tggtacttta 6120
tcctcctatt tagtcaatat tggagtgcct actaggtgct atgctagagc ctggggataa 6180
cagctggtga gcaagatgat cacgattatt tgtgttggtt ttagaaagtg gggaacaaca 6240
acaacaaaaa aggctcctgc cctcagagct cttatattct ggatgcttaa aaaaattttt 6300
cttaggctgg atgcagtggt ttacacctgt aatcccagca ctttgggagg ccaaggtgag 6360
aggatgagcc caagaattcg aaaccagccc tggtaacata ccaagatcct atctgtacaa 6420
aaaaatttaa aaaattaact gggggtggtg gcttatgccg gtagtctcag ctactcagga 6480
ggctgaggaa ggaggatagc ttgagcctag gaggttgagg ctgcggtgag ctgtgattgt 6540
accactgcac cccagcctgg gtgacatagc aagaccctat ctcaaaaaaa aaattttttt 6600
ttaagtgtgt tttgaggctg ggtgcagtgg ctcacacctg taatcccagc actttgggag 6660
gctgaggtgg gcagctcact tgaggtcagg agttcaagac cagcctggtc aacatggtga 6720
aaccctgtcc ctcctgaaaa tacaataatt agccaggtgt ggttgtgcat gcttgtaatc 6780
ccagctactc gggaggctga ggcaggagaa ttacttgaac ccagcgggta gaggttgcag 6840
tgagctgaga ttgcaccact gcactccagc ctgggtgaca gaacaagacc ctgtctcaca 6900
gaacaagacc ctgtctcaaa gaaaaaaaat ttttttaagt gtcttttgag tttaatggca 6960
gatttctggg cacatggaaa tctttatgta atatttcctt acacattcag tttgtactta 7020
tttaaatact aattcatttta aatgcattca aataggaat ttcctattta aaggaactct 7080
aaaaaggtca attttgaaaa gaattcttat gtaaataac cattccctaa tttgtatgtt 7140
ccccaaattt gtttacactt aattttccta gtgaggcctg tgttctgtcc tgtgaccaca 7200
tgctttctta agcctccttt tttcccttcg tggaatgttt attttcttta tacaatttcg 7260
ctctgatata atttatatat ttcgaatcat attgtctacc tcattcaaca gctaagcacc 7320
taatatatga aggcagtgaa gaccactagg atgaatcaga gactcagaat tcgaatttag 7380
```
4

```
ctggggagaa aacatgcaca catctaatac acactgaaag gaatgaggat tctctagagg 7440
actttgggggg ctctaagagt gaagagacct ttctaattag ctgaaaggac ctgcgagggc 7500
attttgatgt gctcttggac agctgttgtc ctcatcttat agataagaaa ctgaagtgca 7560
aacttaatga agtatggcag taaggtattt ggagttagag tgggggtgaa tcctggttct 7620
gctacttacg tgtgatttct aggacatatt actgaacttc tctgaatttc agtttccctt 7680
tataaaatgg ggataacacc atctatttct gaggtgcaaa gcaagtacat ttagagtgct 7740
tagcacaata agaagcacat ggtaagaaat gtggacatgg tagttcctgt tcagtcatca 7800
aaatcctaca gcgccgtggt aggataacat tatccccaaa tatcttaatg aatctgtgat 7860
taaaattcaa ggaaattaaa tcaccaggta taatggcatt tttaatgaga aatctgggaa 7920
aaaaacacca ttaacaaagt tgtgttgtta caaaatgtaa agcgttagtc ctcttggttt 7980
agtgagacgt tataagatgc aggggacagc caggcacagt ggctcacgcc tgtaggccca 8040
acactttggg agccacggca ggaagatcac ttgagcccag gaggtttgag actagcctgg 8100
gcaacaaagt gagaccccat ctctacaaaa aatttcaaaa ttaagccggg catggtggca 8160
tgcacctgta atcctaccta ctcaggagag gtgggagggt gggaggaatg cctgagccta 8220
ggagggtgag gctgctgtga gccatgagca tgccactgtg ctccaacctg gacaacatag 8280
cgagacccca tctcaaaaaa aaaaaaagaa agttgaatgg gactgttaaa atatgtttgt 8340
aaattactgt attggtacta tcctggataa ttttttaaact tttctgtaga gacagggtct 8400
ccctatgttg ccaaggctgg tctcaaactc ctgggctcaa gtgatcctcc tacctgggcc 8460
tcccaaagtg ttgggattac tggtgtgagc cactacaccc ggccaattgt ctttttcttat 8520
tcaagttgag attttttctgg ttcttgatat gatgagtgat ttttcagttg aagcctgatc 8580
attttagata tgatgagact ttggatctta ttgaaatctg ctgtttcagt ggtcttcctc 8640
tgacactgtt ctgatgagga gagggggtgc cgtgactcgt tactgctggg tgtaggagta 8700
gacgtccagg ttcctcactc agccgccttt gcctcctgag tgataggggc tcttgtcact 8760
gcagggcagg gatgggagct gagggcgtgc aggctaccta gtgtgcctct gctaatgtcg 8820
ctgtggctag gaggagcaag ggtgcttctt tccgctgaca ccgcctgtta ggcgtattgg 8880
gatgcctcat tacagtgtgg caagggtggg agtctaggct ctgctcagcc tttgctgggc 8940
acccgtttct ctaaatattg tctaaaaggt ctcttttgct aggctatctt tttttggtcc 9000
ttgactagag agaacatgtt gagggatgat cgatatgagg ccaaaagaaa gcccagggaa 9060
ctcaccacca caacattgat tgaatctcag gcttcctagc tggtccgctt tcctctctct 9120
tcctttcaca gtcctcttac atttgtttca tatgtaacac ccagggtctt tagctgtact 9180
tagcttttgt aagcagaggg agcagattca cttaaattat aataccaaat aaagttaaaa 9240
aacataagta tgatagattt gaagattata tagatacaga aaaatgtttg tgagcccagg 9300
cgcagtggct cacaactgta atcccagcac tttgggaggc cgaggtgggt ggatcacttg 9360
aggccaggag ttcgaaacca gcctggccaa catggtggaa ccccatctct actaaaaata 9420
caaaaattag ctgggcatgg tggtgtgtac ctgttagtcc cagctacttg gcaggctgag 9480
gtgtgagaat taacttgaac ctgggaggcg gaggttgcag tgagatcgtg ccaccgcact 9540
ccagtttggg caatagcgag actctgtctc aaaaaatata tgtttatgaa ataagtaaaa 9600
aaaaatcaga tgtgcatatt gattacaggt atataaccag tacataaaaa tattgatgga 9660
gaacaaaaga ccttcacctc ttcccatgga cccacacctc ttaggtctgt tggatcaggg 9720
ttcatgactc actgtactta aactgtgtat gaatgtgagc gttttctgag aagagaaggg 9780
ttcatttttca ttaaattctt ctttctgact cgaaaaagtg aaaaaagtct ctctgcatgg 9840
gagtaagccc aaatatttgt caaaaaacaa gttgtgattt attcagacat ataaatattt 9900
aaatttatat aaaagccaca tcgagaaaat tctagaagga tgatggaact gtgtatgtaa 9960
taattacaat aagttataat cacaaaaaaa ccagcgttcc atggaattgt acagataacg 10020
acaatttttt ttaacagatg gagaataatc atctatggaa tagtagttta gaagaacttc 10080
atagaatttt tttttttttt tttttttttt tttttggag agggagtttc gttcttgttg 10140
cccaggctgg agtgcaaagg tgcgatctcg gctcgctaca acctctgcct cccgggttca 10200
agcgattctc ctgcctcaac ctcctgagta gctgggatta caggcatgca ccaccatgcc 10260
cagctaattt tgtattttta gcagagactg ggtttcttca tgttggtcag ctggtctcg 10320
aactccagac ctcaggtgat ctgcccgcct cagcctccca aagtcctggg attacaggtg 10380
taagcgactg tgcctggcag aacttcatag aattttaatg ctcttttata tcaactaatc 10440
aaattatatt tgcttcattt tggggaaacg tgtaattttg atttgttttg gggttttttt 10500
gagataaagt gtcactctgt cgcccaggct ggagtacagt ggctcaatct ggctcacca 10560
caacctcagc cttccgagta gctgggacta caggcgccca ccaccagtc tggctaattt 10620
ttgtgttttt agtagagacg gggtttcact atgttggcta ggctggtctt gaactcctga 10680
cctcaggtga tccacctgcc tcggcccctc agagtgctgg gattacaggc gtgagccacc 10740
gtgcccggct acaattatag tctcttgcac agaagccagc ttggtcaaaa ttcaggtctt 10800
```
5

```
cttgggtcct  cctttttgagg  agtgttcatg  ctgtccttcc  atcttgcagt  taccctgact  10860
tctaagaatg  caacccgagc  ttgtttccct  gttgaggcca  cttggcagtt  atatgaggga  10920
ctggggacat  ctgagatctc  tgggactcat  aataattttc  tttaaagttt  tagtaattcc  10980
ccaaatgtaa  gataatcttg  tattctgaag  caacccgtca  catagaagac  attaagaaaa  11040
cattgattaa  gagaggtaga  tgctattttc  cagaaacaac  cgtttttata  tgaaaaggta  11100
ggaacctttc  tttttaatga  taggggcttc  tttcaaaagt  tattttgctc  ttaggtgtct  11160
tttttttttt  tttaaacatc  tcattcataa  ataattaaaa  acttatggga  aagttgcagg  11220
gaatagtaca  gaggactccc  ataaagtctt  ttttgtttgt  ttgttttgtt  ttgttttgag  11280
acagagtctc  gctgttttac  ccaggctgga  gtgcagtggg  acaatctcgg  ctcactgcaa  11340
cctctgcctc  ccgggttcaa  gcaattctcg  ggccttagca  tcctaagtag  gtgggattat  11400
aagcatccgc  caccacgccc  agctaatttt  tttttttttt  tttttttttg  tattttagt  11460
agagacgggg  ttttaccacg  ttggtcaggc  tggtctcaaa  ctcctgacct  caggtgatcc  11520
acctgcctcg  gcctccaaaa  gtgctgggat  tataggcgag  agccactgca  cccagcccca  11580
tgtagtcttt  ttaaaaagca  ggcaactcag  gtttactagt  taacatgcaa  aaaactgcac  11640
atatttaaag  tttggtaagc  tttgacatgt  agacacccgt  gaaaccatca  ccacactcaa  11700
gatcatggac  atattcatcc  caaaagcttc  ctagtggtca  ctccttcctg  cccctcctct  11760
acccctggcg  acaacttacc  tacttctact  aaagataaat  tagtttgcaa  atggaaccat  11820
acagcatata  ctagtatttg  ttgtcctggc  ctcatttact  ctgtataatt  actttgagac  11880
tcatccatgt  tctgtgtatc  agtttattcc  tttattattt  ttgagacagg  gtcttactct  11940
gttgcccagg  caggagtgca  gtggtgcaat  catagctcac  tgtaaccttg  acctcctggg  12000
cttaagggat  cctcatgcct  cacaatgtgc  tggaattaca  ggcgtgagcc  accacactgg  12060
caatgttttg  tttctttatg  aagatgaata  aagatttcac  atgaattttt  taagatgaaa  12120
catgcttcat  gcatgcaggt  ttctttgggc  gtattcatgc  ccactccctc  tggttggagc  12180
tttgtcagag  aagtgtgagc  agttcttcc  taggccatag  gtgaaagatg  cgcatgacac  12240
gcttagcact  gtccttgcgg  ttcatgaggc  acatacatct  tactgccccg  tagtaaaaat  12300
tcagtctttc  caagcgatta  ctgtgtgaag  gacatttagt  tccttcacct  attattgggg  12360
acataagtaa  ctgaaagctt  tgaagctttg  tgctcaccta  gaaatgtgca  gcatgtaaac  12420
tttctagaaa  atgtgctgct  ctttagacct  tgtagccact  aagcagttgc  atattgagtt  12480
tcccattctc  cctgctgtgt  tactttgcag  tctggtgcca  tcatgacagt  cctcgcagct  12540
gtctgcacta  agatcccaga  agggaggctt  gccattattt  tccttccgat  gttcacgttc  12600
acagcaggga  atgtaagtat  ttttatgaag  tgcagtgctg  gggatagtgg  tgatgttttt  12660
atgttgagtg  ggttcttgcc  cttaagttag  aaatgtcagt  gctggagcaa  tcacagttgt  12720
gccgcttgtt  tcttgctgcc  tttcaggccc  tgaaagccat  tatcgccatg  gatacagcag  12780
gaatgatcct  gggatggaaa  ttttttgatc  atgcggcaca  tcttggggga  gctctttttg  12840
gaatgtaagt  ttgagtgtaa  ttgattgcta  aactgcttcc  ttgggtcatg  cgctcctcct  12900
accccagcct  cacccctacc  ccccatcccc  atggcagaga  cattgaacta  tgcaacggaa  12960
gcagaagcag  gtgggcttgg  gagggtgagg  aaacctcaac  atggcttgct  ttgggtttac  13020
ccagcatacc  tggctcattg  tagagacagt  ctgtgccttt  accctacgct  taaccttaag  13080
ttgccccaac  tgttggcctg  ttattcccag  cccctctta  gaagactgca  gcctggcccc  13140
cagtctatgc  tgacatcttc  ttttttcccct  tcagactttc  ctgccctcct  ctccctgcc  13200
tggcgtccca  ccctgctacc  ctgacctctg  tctcgccagt  gctatttaga  catgctgagt  13260
tggcggagcc  attgctctgt  atgactggag  tagaggccgg  tgactgcaaa  ccaatgtgga  13320
ccacttactg  agtacccgct  gtatgcaggc  accaagctag  ttcccttatg  ttatactatt  13380
actactccca  ttttactgat  gggaaactga  ggctcagaca  tcatcttccc  caggccaaac  13440
agctcttcaa  tagcagagca  gagctgtaaa  cccacctcta  taagcccttt  ccaccccac  13500
cacaccatat  ggaattggtt  gctaaactgc  ttccttgggt  cacagcaaat  ggcattgtgg  13560
ttacaagacc  ttccacgtgt  gcttcaaaca  atgggtttt  gcctagacta  gtgcttagta  13620
gtaactgtat  cacggaaaca  cggtcaggac  tcttggcgtc  catctgatcg  tgggagaccc  13680
gtcagcatga  gctggatccc  ctcggggcct  gtcttttctt  acataaatgt  tgcctttttgc  13740
ccttacttgg  ttttttatttt  gttccgcgac  aatggaaaac  ttaatttttt  tttttattaa  13800
aaagaaaaat  ctattctggc  caggtgcagt  ggctcacgcc  tgtaatccca  gcactttggg  13860
aggccaaggc  aggcggatca  caaggtcagg  agatcgagac  catcctggct  aacacagtga  13920
aaccccgtct  ctactaaaaa  tacaaaaaac  ttagccgggc  gtggtggcgg  gcgcctgtag  13980
tcccagctac  tcgggaggct  gaggcaggag  aatggtgtga  acccagaagg  cagagcttgc  14040
agtgagccga  gatcacgcca  ctgcactcca  gcctgggcga  caaagtgaga  ctctgtctca  14100
aaaaaaaaaa  aagaaaaat  ctattctaag  tgaagcagtt  tttcccagta  ggtggcagaa  14160
ctaaatgcca  ttatgccatt  tataatttta  agtgattaaa  gaggagtagt  atgtagtata  14220
```

6

```
tgcaaggtct agctctaaca gcagtgcagt ataaatagta gaaactgacc tgatattaca 14280
gtatgagaaa catgaagggg ttctgttttg tgagctctaa atttatcttc catgtatact 14340
tcaaggctct tctccccagt agattttat tcatctgaac tataattagg tggcctttt 14400
ccattctgaa aataattgga tcaaatgcat tttaaagtcc agggtctgaa aggtggagga 14460
atcctttctc tttactgttt ctaatttaaa ctccttttca tttactagat ttcagtcatg 14520
tccagaattc atcttttcta aaagctttaa tctagattta gaaatctaaa atcttttatt 14580
tatttttttt tcgttgaagt gccctgattt tgttggtggt aaagactcca ttagtatcca 14640
cttatacatt tccctgactt tgcctctgac caaaccttac agtattcaca ttgtactgtt 14700
gcaataataa tagctaacat attaatacac tgaatatttg ctgtgtgcct aagctaagga 14760
tttaattctc ttaaaatcct gtgaggtatt ttattttaca gaaaaagaaa ctgcttaaag 14820
aaagtaactt atccaggtca cacaagtaac aattgcagag ctggagtttc agatgagggc 14880
tggcttgcgc tgccgctaca gaaaagagtg ccctagaaat cggtcatctt gcatttcccg 14940
attttagttt agccaaatga aaaattcctt ttggatttat gagtataatc agacagtata 15000
cctgtgaaat taaagtattt gactctttgc ttgaaataag taggttaaaa agatttgggt 15060
ggccgggcgc agtggctcac gcctgtaatc ccagcacttt gggaggctga ggcaagtaga 15120
tcatttgagg tcaggagttc gagaccagcc tgaccaatat ggggaaacct cgtctctact 15180
aaaaatacaa aaattagccg ggcgtggtgg tgcatgcctg taataccagc tacttggagg 15240
ctgaggcagg agaatcactt gaagccagga ggcagaggtt acagtgagct gagatcacgc 15300
cactgcactc cagcctgggc aacagagcgc gactctgtct aacaacaaaa aagatttggg 15360
aaaacacttt attaatgaag agttcctgac aaagtgattt ttttggggag aatttttata 15420
attgcatttg aatattaggg tgctcctttt tctctcattc taaattcacc agagacttaa 15480
gcacagagaa tttttattac atgcctgtta attaatgtgt ataatcagat tttaactata 15540
tttagtgaat attaagattc aggtacaaat caagcccttt ataattaaac atacacattc 15600
agaacatttt taaaatatta aaacattaaa ctgctcttct cacccactcc aagtcaaata 15660
gcattttttc agtcaggtgt ctgggagctc gatgcaagat aacaaaatct ggtctctgcc 15720
tcagggaaca tgaaatctgt ttggggaagc cagagcaaaa ataaaggttt taatagcaag 15780
ctctcactaa ctgcccctgg aaatccaccc cacatcctcc aggaagcctt tctctacccc 15840
cagtgccctc aggagcttct ccaaggcagg cccttcccag agcgcagtgt gctccccagc 15900
tcacaggaga tgctccctac acgctgcagg aaagtccagt gcctgcagca caggcttcag 15960
cagcagactc gggttctagt ctcagtctgc tgattcctag ttgtggaacc tgagcaggcg 16020
aagttactaa acctctctgt gcgtcagcct cccaggctcg ttgcttcagg ccgcagttag 16080
gctgtgtgaa caggagagtg gggatgggaa ctaggtatct taaagcgggg cagagtttgg 16140
atgagcgggc cacccttcgt atagttagga ggaagatgac gggaggcatg gaagctggga 16200
tagccatcct gagtcagtgc taattctgac acttcagaac atcgagtcag tctgacctgc 16260
gagtgagctt tcattgacca cttagaaact attagcacct tggacaaact actttctttc 16320
agacctggtt gcttcatgtc tgcgatggga aaactgatac ttaacttgca gatagtggtg 16380
aatcaaaagt agtatatgtg aagtactcac acactgcgga gcattcagcc atcgtcccat 16440
cctacttcta cctttacat attgtaatat gaaagctaaa ccatttctcg atgtgagtca 16500
gttttaatcg gctacatagt gagtggcatt cgattttaaa aatgtcaact tgggatctgt 16560
caccatgcta cttaccattt gtatgtcaca ctgtttgaat gtcggacctg gtttgttttt 16620
ctccagatgg tatgttactt acggtcatga actgatttgg aagaacaggg agccgctagt 16680
gaaaatctgg catgaaataa ggactaatgg ccccaaaaaa ggaggtggct ctaagtaaaa 16740
ctgggattgg acagtagtgg tgcatctggt ccttgccgcc tgagagcccc aggagacatc 16800
ggctagagtg accatggcta tgctcccgtc tggaagatgc cagcatctgg cctcccactg 16860
ttttcagctg tgtcccccag tccgtgtctt tttagaatgt gaatgatgat aaagttgtga 16920
aataaaggtt tctatctagt ttgtaagcag atgtgtgtgt tctctcttta aggggccgac 16980
acggctctgg cattttgctt tggttgttgc attgacagga cctggggaga gtgcaccctg 17040
aaaggcctga tcagaacatg aaggcgctgg ttgcctgtct ttggaccctc cagtgcctct 17100
gcttagcctt cactcttcct tgcctccccc tcccctgggt tggctgcaca taaaagtcaa 17160
gagtatcccc tctccagcac aatctgaaat aacagctgca gtattttctc aattttcagg 17220
aaaggtagtg ttttctggca gtgagtggca tatacaaaaa gctatttca ggttttgctt 17280
tctaggttca atttgtagat aaattaagag gtagaaagaa gtgatttggg taaattcaga 17340
cttgaaatct gagccgaatt ttatcttctg tttgaaagtg ttctaattga agcgtctcac 17400
tgaaaatagc agatagtggc tgtcgtcgtc acagccctca ctgttgtgga attcatgtta 17460
ccctcgtgac tgagaatgac atctaggaaa tgcagtttga gagtatgttc ttcttgaagt 17520
catttacagg agaatttta gtcttttgat ggcttcaaaa tgttatacca agtcttgcag 17580
ctttgtcctg ggaggatcga aggccctgat ttcagcctcc tgtggccgat cggactcagg 17640
```
7

```
ttgtgtgccg tggggatgg gaatggcggc tttggaaaag gagtgggagt ggtgcccacc 17700
tcaccaggca agtgagaact gcatggcagc acgcgcccag cacatagaaa ttgtccagta 17760
tttggcagtc cttcatatcc ttcttccatc aggctggact tgtttctact atgatttaca 17820
gttattcttc ccaggcacag gattctgttc taaactcgta tcacttctag gggagagagt 17880
tatcttagcc atcattttgc cagcgaggaa acggcacacg tggtgtaggg gcactgccca 17940
aggtcacaat gctttgctct gacatctgct aacaactgca acacagatga ggcaagatgc 18000
gttttccaga gatgggatag gaggctgagt tcatagggac attccctcta gagcccaaca 18060
ttaattcaca tcgtgctttg ggcagaccag gcaaagaggc aatgaagaca tctctgtgtc 18120
cctgctttgt gactgggaaa aagttagaag tccctgtagc atctcctggt ccctaaaacc 18180
cctcaatgct ggagcctctg tgcatggcct ggggaggcca gaacctggct gtggccggag 18240
aagccttgct gtccacagct ccctcctgat tgcccacgag ggtgcttcac tttctcctct 18300
tggcttctct ggggacccgc gatcactgcc ttcaaggcca tgcactccct ggcccgtggg 18360
cctcttgggc tgtgccgcct ccactggcat ctgaagtgtg gggtacctag gaacatgccg 18420
tggctgccgt ctccctcatt ccatacactt cttgagtggg tgcacttgct gaagcctcag 18480
ttatctgtga ggattctgag ctccagaccc acagaatctc tctgtactct tagtaaatgt 18540
gtctactgca acacacgcat ggttccaggc tctgggacca ccccccccgcc ctgcacaggc 18600
ccctcaaata gcactcggct taaggagtga cacgagcaat cggtgaagtc tgaaacccgg 18660
agccattcga gatctccctc tctcgcctct tatttctaga attcagcccc tcagccttcc 18720
cagtgcctgt gactccgtgg tggtcctcac ttcttagtcc ctggactgtt gagcctgttc 18780
ttccagctgg tctccaaagc aaccctgtgc ttctccatat gcctgccaga gtgctaaaaa 18840
cacgtctgtc attcctttgt tgtcacctgt gaaaaacttt tatttatttg agacagggtc 18900
tctctctctc tctctcgtcc aggctggagt tcagtggtgc aatctagatg gtcactacac 18960
tcagggagtt ggggatggct cagagctgtt aacagagagg ggactgccca ggaggacctg 19020
cgtgaggggt gggggtggga tgacaaggaa ccagctctgg gagttgaaag acctggattc 19080
aagtctcaac ccaagccctg gccagctctg ggaccccgga caagtcggcc tcactctctg 19140
cccctcagtg ggctcctgtg tagatgggga taatgatggc tttatatcct gagaatgtgg 19200
ggaggggatt aagtggccaa aatacctgag agtgcgcact cagtgcctgg ctcagcaaat 19260
gcccttgttc cctccttccc tctccccaga acccctcctc cccttcttct tctttttttt 19320
tttttttttt tgacccagag tcttgctatg ttgcccaggc tggagtgcag tggcacaatc 19380
tcggctcact gcaacctcca cctcctggct tcaggcaatt cttgtgcctc agcctctcga 19440
gtagctggga ttacaggcag gcaccatcac gcccggctaa tttttttttt ttttttttgt 19500
agtagaaatg ggatttcacc atattggcag gatgttctcg atctcctgac ctcaggtgat 19560
ccactcgcct tggcctccca aagtgctggg attataggtg tcagccactg cgcccagccc 19620
ccattgttta tctcctcttc catttcttgt gggacttttt aaaggaaaaa tcaggttggt 19680
gggctggggg agggcatagc tgagaccacc ttgagggcac caagctcact gaccac 19736
```

<210> 4
<211> 379
<212> PRT
<213> Homo sapiens

<400> 4

```
Met Ala Trp Arg Gly Trp Ala Gln Arg Gly Trp Gly Cys Gly Gln Ala
1               5                   10                  15
Trp Gly Ala Ser Val Gly Gly Arg Ser Cys Glu Glu Leu Thr Ala Val
            20                  25                  30
Leu Thr Pro Pro Gln Leu Leu Gly Arg Arg Phe Asn Phe Phe Ile Gln
            35                  40                  45
Gln Lys Cys Gly Phe Arg Lys Ala Pro Arg Lys Val Glu Pro Arg Arg
        50                  55                  60
Ser Asp Pro Gly Thr Ser Gly Glu Ala Tyr Lys Arg Ser Ala Leu Ile
65                  70                  75                  80
Pro Pro Val Glu Glu Thr Val Phe Tyr Pro Ser Pro Tyr Pro Ile Arg
                85                  90                  95
Ser Leu Ile Lys Pro Leu Phe Phe Thr Val Gly Phe Thr Gly Cys Ala
            100                 105                 110
```

8

Phe Gly Ser Ala Ala Ile Trp Gln Tyr Glu Ser Leu Lys Ser Arg Val
    115   120   125
Gln Ser Tyr Phe Asp Gly Ile Lys Ala Asp Trp Leu Asp Ser Ile Arg
    130   135   140
Pro Gln Lys Glu Gly Asp Phe Arg Lys Glu Ile Asn Lys Trp Trp Asn
145   150   155   160
Asn Leu Ser Asp Gly Gln Arg Thr Val Thr Gly Ile Ile Ala Ala Asn
                    165   170   175
Val Leu Val Phe Cys Leu Trp Arg Val Pro Ser Leu Gln Arg Thr Met
                    180   185   190
Ile Arg Tyr Phe Thr Ser Asn Pro Ala Ser Lys Val Leu Cys Ser Pro
    195   200   205
Met Leu Leu Ser Thr Phe Ser His Phe Ser Leu Ph His Met Ala Ala
    210   215   22(
Asn Met Tyr Val Leu Trp Ser Phe Ser Ser Ser Ile al Asn Ile Leu
225   230   235   240
Gly Gln Glu Gln Phe Met Ala Val Tyr Leu Ser Ala G Val Ile Ser
                    245   250   255
Asn Phe Val Ser Tyr Leu Gly Lys Val Ala Thr Gly Arg Tyr Gly Pro
                    260   265   270
Ser Leu Gly Ala Ser Gly Ala Ile Met Thr Val Leu Ala Ala Val Cys
                    275   280   285
Thr Lys Ile Pro Glu Gly Arg Leu Ala Ile Ile Phe Leu Pro Met Phe
    290   295   300
Thr Phe Thr Ala Gly Asn Ala Leu Lys Ala Ile Ile Ala Met Asp Thr
305   310   315   320
Ala Gly Met Ile Leu Gly Trp Lys Phe Phe Asp His Ala Al His Leu
                    325   330   335
Gly Gly Ala Leu Phe Gly Ile Trp Tyr Val Thr Tyr Gly His Glu Leu
                    340   345   350
Ile Trp Lys Asn Arg Glu Pro Leu Val Lys Ile Trp His Glu Ile Arg
    355   360   365
Thr Asn Gly Pro Lys Lys Gly Gly Gly Ser Lys
    370   375